WHAT IS CLAIMED IS

1. A cell multiplexing apparatus for receiving
communication information over a minimum of two channels
for assembling the received information into an asynchro-
nous transfer mode cell made of a fixed-length header and
a payload, and for transmitting the assembled cell, said
apparatus comprising:

call monitoring means for obtaining call setting
information from individual items of said communication
information; and

multiplexing means for multiplexing said communica-
tion information received over said minimum of two chan-
nels into a single asynchronous transfer mode cell of a
fixed length in accordance with said call setting informa-
tion obtained by said call monitoring means.

2. A cell multiplexing apparatus according to claim
1, wherein said communication information is a coded audio
signal, and wherein said multiplexing means stores said
coded information into said payload of said asynchronous
transfer mode cell.

3. A cell multiplexing apparatus according to claim
1, wherein said payload in said asynchronous transfer mode
cell has a user information part divided into fixed
lengths for accommodating at least two items of said
communication information in equally divided quantities.

4. A cell multiplexing apparatus according to claim 1, wherein said payload in said asynchronous transfer mode cell has a user information part divided into at least two variable lengths for accommodating at least two items of said communication information in appropriately divided quantities.

5. A cell multiplexing apparatus according to claim 1, wherein said multiplexing means comprises:

coding-decoding means for coding into digital format the communication information coming from subscriber terminals via said channels;

a minimum of two code buffer means for accumulating said communication information in said digital format;

buffer control means for assembling said payload of said asynchronous transfer mode cell by monitoring said code buffer means; and

asynchronous transfer mode multiplexing means for prefixing a header to said asynchronous transfer mode cell of which said payload is assembled by said buffer control means; and

wherein said buffer control means reads a fixed quantity of said communication information from said code buffer means so as to assemble said payload of said asynchronous transfer mode cell every time said buffer control means detects said fixed quantity of said communication

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information stored into said code buffer means.

6. A cell multiplexing apparatus according to claim 5, further comprising:

a minimum of two multiplexing means each including coding-decoding means, buffer control means and asynchronous transfer mode multiplexing means; and

cross connection multiplexing means for connecting said minimum of two multiplexing means.

7. A cell multiplexing apparatus according to claim 5, wherein said call monitoring means comprises:

a call monitor, provided for each of a plurality of channels, for monitoring the status of a call;

control signal transmitting-receiving means for recognizing a channel control signal received over a channel; and

transmission path selecting means for extracting path information from said channel control signal and for supplying said buffer control means with channel path information; and

wherein said buffer control means, upon receipt of said channel path information from said transmission path selecting means, determines the path of said asynchronous transfer mode cell.

8. A cell multiplexing apparatus according to claim 1, wherein said call monitoring means acts as path identi-

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fying means which receives asynchronous transfer mode
cells as said communication information and which, by
monitoring the headers of the received asynchronous trans-
fer mode cells, captures only those asynchronous transfer
mode cells each having an identical virtual path identifi-
er; and wherein said multiplexing means acts as cell
mapping means for multiplexing a minimum of two asynchro-
nous transfer mode cells having the same virtual path
identifier into a new asynchronous transfer mode cell.

9.   A cell multiplexing apparatus according to claim
8, wherein said cell mapping means comprises:

timer means for counting the time required to capture
asynchronous transfer mode cells having the same virtual
path identifier;

virtual channel identifier detecting means for de-
tecting virtual channel identifiers from the captured
asynchronous transfer mode cells; and

cell mapping control means for generating a header
and a payload of a new asynchronous transfer mode cell
based on the information coming from said timer means and
said virtual channel identifier detecting means; and

wherein said cell mapping control means takes the
virtual channel identifier held in the header of the first
asynchronous transfer mode cell captured from among the
cells having the same virtual path identifier, employs

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said virtual channel identifier as that to be stored in the header of said new asynchronous transfer mode cell, and fills a channel identifier part of a payload control information part in the payload of said new asynchronous transfer mode cell with the virtual channel identifiers of the second and subsequent asynchronous transfer mode cells captured.

10. A cell multiplexing apparatus according to claim 9, wherein said cell mapping control means takes any one of the maximum and minimum virtual channel identifiers of the first asynchronous transfer mode cell captured from among the cells having the same virtual path identifier, employs the virtual channel identifier thus taken as that to be stored into the header of said new asynchronous transfer mode cell, and fills said channel identifier part of said payload control information part in the payload of said new asynchronous transfer mode cell with the virtual channel identifiers of the second and subsequent asynchronous transfer mode cells captured.

11. A cell multiplexing apparatus according to claim 10, wherein said cell mapping means takes low-order n bits alone of said second and subsequent virtual channel identifiers captured, and stores successively said low-order n bits into said channel identifier part of said payload control information part in the payload of said new asyn-

chronous transfer mode cell.

12. A cell multiplexing apparatus according to claim 9 or 10, wherein said cell mapping means comprises a management table containing channel numbers corresponding to virtual channel numbers under each virtual path identifier; and wherein said cell mapping means coverts to the corresponding channel numbers the virtual channel identifiers of said second and subsequent asynchronous transfer mode cells captured by referring to said management table, and stores said corresponding channel numbers into said channel identifier part of said payload control information part in the payload of said new asynchronous transfer mode cell.

13. A cell multiplexing apparatus according to claim 9, wherein said cell mapping control means takes a representative virtual channel identifier indicating a plurality of multiplexed asynchronous transfer mode cells, uses said representative virtual channel identifier as the channel identifier of said new asynchronous transfer mode cell, and stores the virtual channel identifiers of the asynchronous transfer mode cells captured by said path identifying means into said channel identifier part of said payload control information part in the payload of said new asynchronous transfer mode cell.

14. A cell multiplexing apparatus for transmitting information in asynchronous transfer mode cells each made of a header and a payload in an in-house communication line setup, said apparatus comprising:

in-house bus means for transmitting said asynchronous transfer mode cells; and

in-house terminal means including a plurality of information sources connected to said in-house bus means via interface means for interfacing with said in-house bus means;

said interface means including:

buffer means for accumulating a plurality of transmission information from each information sources;

buffer control means for multiplexing the information accumulated in said buffer means into said payload of a single cell; and

asynchronous transfer mode multiplexing means for setting said header to indicate said payload being multiplexed with a plurality of information.

15. A cell multiplexing apparatus according to claim 14, wherein said buffer control means includes payload assembly ratio calculating means for receiving from said in-house terminal means requests for desired rates at which to transmit information, for calculating the transmission rate of information input to said buffer means,

and for calculating the ratio at which to apportion into said payload at least two items of the information to be transmitted.

16. A cell multiplexing apparatus according to claim 14, wherein the payload of each asynchronous transfer mode cell is divided into a payload control information part and a payload user information part;

said payload control information part having a first control area and a second control area, said first control area storing identifiers each indicating to which part of the entire information transmitted the corresponding portion of information held in said payload user information part belongs, said second control area storing identifiers each indicating the length of the corresponding portion of information held in said payload user information part;

said payload user information part accommodating at least two variable-length portions of information corresponding to the identifiers stored in said second control area of said payload control information part.